
Unit 4: The Immune System and Blood Stem Cell Lineage Tree

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Suggested time frame: Five to ten class periods

Course level: Advanced Biology, AP/IB level Biology, biotech classes, college level Biology

Inquiry teaching: Read how to modify the curriculum for inquiry teaching

- [View Unit 4 Lesson Plans](#)
- [Download Unit 4 Teacher Background Information \[pdf\]](#)
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Brief Outline of Unit 4

[View Detailed Unit 4 Lessons Outline](#)

I. INVITATION

A. Human Blood Observation

1. Microscopic or virtual slides and responses

B. Think, Pair, Share - Connection of body responses to illness

C. The hematopoietic stem cell and its descendants: myeloid, erythroid, and lymphoid lineages

1. The Cell is Right activity - students connect cell types to positions in blood lineage tree

D. AP extensions of discussion

1. T-cells, stem cells, progenitor cells, and mature cell types

II. Exploration

A. Lecture - the immune system

1. Lymphocyte development, pathogens, immune activation, and response
2. Innate and acquired immunity
3. PowerPoint and activity- Natural Killer Cells webquest to decide if part of nonspecific or specific immunity

III. Application

A. Case studies of blood disorders

1. Jigsaw reading activity of HIV/AIDS, sickle cell anemia, leukemia, and lymphoma case studies
2. Jigsaw teaching groups report back explanations of cases and record blood disorder summaries on table provided

B. Bone marrow transplant investigation

1. Animations and questions regarding bone marrow transplants
2. Extension of homework activities for topics of bone marrow use and umbilical cord blood
3. Webquest based on topics of blood disorders, biomedical research, and careers

IV. Assessment

1. Student graphic display of understanding blood diseases
2. Students turn in final copy of their Blood Disorder Summary Table
3. Teacher designs questions to test understanding of lecture topics and concepts of disease causes, symptoms, and treatments

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